



Innovative Heating System Offers Regions Hospital Long-Term Efficiencies



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Don Abbott,
Director of Maintenance
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Cutting costs

It's hard to make time for efficiency at a 24 hours a day, seven days a week operation like a hospital where the action never stops. The maintenance team at Regions Hospital, a private, non-profit organization in St. Paul, Minnesota, knew they could be saving energy and money. They worked with Xcel Energy to find approaches to heating efficiencies that would garner near-term and long lasting solutions.

Making a list

They started with an Xcel Energy Recommissioning study to determine an efficiency priority list.

"Boiler consumption is about 85 percent of our gas use, so we're always looking at better ways to make that equipment efficient," explains Don Abbott, Director of Maintenance and Engineering.

Abbott and his staff review the boilers, air handlers and steam traps along with inspectors every year.

"We have 47 air handlers for nine buildings, along with four boilers, so we keep busy just making sure those are operating as well as they can," says Josh Knoll, Chief Engineer. "We take the worst performing air handler every year, tear it out and rebuild it with a new, efficient design."

Repairing steam traps and upgrading an outdated efficiency controls system came next.

"Our controls were getting so old that we couldn't even get parts anymore for some of the equipment, so it was definitely time for a change," says Tony Mies, the Building Automation Manager. "New controls make our heating system more reliable, more efficient and it gives us more options."

Rebates from Xcel Energy helped offset the cost of the new equipment. Abbott says it made the work affordable.

"More businesses should take advantage of these rebates," says Abbott. "They helped tremendously."

Project snapshot

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| Projects | <ul style="list-style-type: none"> Boilers Steam traps Pipe insulation Tank insulation Efficiency controls 02 trim control on boilers Reverse osmosis water filtration system |
| Xcel Energy rebates | \$28,746 |
| Annual cost savings | \$38,000 |
| Energy savings | 58,269 therms |

Next, they improved their boiler controls to include O2 trim.

From an efficiency standpoint, excess O2 means there's more air in the combustion stream than is necessary. That air also contains moisture, which is heated and lost when it is expelled.

"By adding new controls with O2 trim we made the boiler safer and now we can control the amount of oxygen to make it more efficient," says Knoll. "Plus, it was eligible for a rebate which moves it up the priority list."

Adding the controls saves Regions Hospital \$30,000 in annual heating costs.

They weren't quite done yet. They added a reverse osmosis filtration system, which saves them another \$8,000 a year in energy costs and \$1,355 a year in water savings.

"It works great because we can take the money we save and invest it in the next project," says Abbott.

Comfort is key

Since patient comfort is a priority, they opted to install temperature occupancy controls at the room level, in addition to the building controls, to allow anyone in the room to override the system.

"It adds a few layers of safety," explains Mies. "If you were to lose a network engine and lose a control point, the occupants in the room would have no control at all. These controls override the system so they can always be comfortable."

Mies adds that they continually evaluate the room needs to ensure patient and staff well-being.

Heating system safety monitoring

Other parts of the efficiency work included a computer-based building control system to manage constant monitoring, built-in redundancy and a warning system.

"Advanced warning systems tell us there's an issue with a heating valve," says Mies. In cold Minnesota winters, it's common to see a heating valve operate at 100 percent for hours at a time, but when it's warmer outside, that shouldn't happen. "This system finds the problem for us before it becomes a crisis," he says.

This combination is expected to provide next-generation insights into energy efficiency as well as other operational insights.

"It helps us determine where our energy is used and why," says Knoll.

Worth the effort

All of the team's efforts have paid off. With these measures, Regions is now saving more than \$38,000 annually and has received more than \$28,000 in Xcel Energy rebates. They have also tackled lighting and other areas of efficiency as part of their efforts.

"We're trying to make everything more reliable and more efficient while maintaining patient comfort and safety," adds Knoll.

They'll continue to make time for efficiency throughout the campus since boosting the bottom line is important no matter what business you're in.



For more information about Xcel Energy rebates and energy efficiency programs, contact your Xcel Energy account manager or an energy efficiency specialist at the Business Solutions Center at **855.839.8862** or **energyefficiency@xcelenergy.com**.

You can also visit **xcelenergy.com/HeatingEfficiency**.